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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/761,420	01/22/2004	Dae-sik Kim	Q74905	3205
23373	7590	08/09/2005	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			DOWLING, WILLIAM C	
			ART UNIT	PAPER NUMBER
			2851	

DATE MAILED: 08/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/761,420

Applicant(s)

KIM ET AL.

Examiner

William C. Dowling

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11, 13-25, 27 and 29 is/are rejected.
- 7) ☒ Claim(s) 10, 12, 26 and 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 51804/7605/12204.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 8, 19-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

There is no proper antecedent for an embodiment with a prism in front of three dichroic prisms.

Claims 19-20, shown in figure 15 are inconsistent with Claim 16 because the light is not reflected back to the polarizing splitter surface.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 9, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lambert (6,288,815) in view of Shibatani et al. (6,332,684).

Lambert discloses a projection system comprising:

a light source;

a color separator which separates an incident beam according to color;

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a scrolling unit, comprising at least one lens cell, which converts the rotation of the lens cell into a rectilinear motion of an area of the lens cell through which light passes so that an incident beam is scrolled, the scrolling unit including a spiral lens disk (35) figure 7B,

a light valve (not shown)which processes a beam transmitted by the color separator and the scrolling unit according to an image signal and which forms a color picture,

a projection lens unit which magnifies the color picture formed by the light valve and which projects the magnified color picture onto a screen, and

Lambert does not teach the use of polarization conversion means.

Shibatani et al. (6,332,684) teaches a polarization conversion system installed in Figure 26, between a color separator and a light valve, which converts the incident beam into a beam with a single polarization, the color separator is formed of slanted dichroic filters.

a first and a second fly-eye lens array are arranged on a light path between the color separator and the light valve, and

the polarization conversion system is installed behind the second fly-eye lens array and comprises a plurality of polarization beam splitters disposed perpendicular to the traveling direction of light and a plurality of half wave plates. Forming the PBS's at half the size of the lenslets is well known in the art because each lenslet forms a condensing light beam.

It would have been obvious to one skilled in the art at the time of the invention to modify the device of Lambert by the addition of polarization conversion means, as taught by Shibatani et al., because it is well known in the art to use such structures to obtain use of both polarization components in liquid crystal light valves.

It also would have been obvious to one skilled in the art at the time of the invention to modify the device of Lambert by the substitution of a different type of color separation means, such as taught by Shibatani et al. because each would function as a means to form separated color beams.

The use of diaphragm means to control divergence of light from a source is deemed to be old and well known in the art.

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lambert and Shibatani et al. as applied to claim 1 above, and further in view of Kobayashi (6,057,894).

Lambert and Shibatani et al. disclose the invention substantially as claimed but do not teach the formation of color separation means of sequential dichroic prisms.

Kobayashi teaches such a color separation structure with structure (6) which is formed of three prisms with dichroic surfaces (6B, 6R, 6G).

It would have been obvious to one skilled in the art at the time of the invention to modify the device of Lambert and Shibatani et al. by the substitution of a different type of color separation means, such as taught by Kobayashi, because each would function as a means to form separated color beams.

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4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lambert and Shibatani et al. as applied to claim 1 above, and further in view of Kanayama et al. (2003/0095213).

Lambert and Shibatani et al. disclose the invention substantially as claimed but do not teach the formation of color separation means of parallel dichroic prisms.

Kanayama et al. teaches such a color separation structure with structure (5) which is formed of three prisms with dichroic filter surfaces .

It would have been obvious to one skilled in the art at the time of the invention to modify the device of Lambert and Shibatani et al. by the substitution of a different type of color separation means, such as taught by Kanayama et al. (2003/0095213), because each would function as a means to form separated color beams.

5. Claims 15, 21, 25, 27, 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lambert (6,288,815) in view of Hwang (6,588,906).

Lambert discloses a projection system comprising:

a light source;

a color separator which separates an incident beam according to color;

a scrolling unit, comprising at least one lens cell, which converts the rotation of the lens cell into a rectilinear motion of an area of the lens cell through which light passes so that an incident beam is scrolled, the scrolling unit including a spiral lens disk (35) figure 7B,

a light valve (not shown)which processes a beam transmitted by the color separator and the scrolling unit according to an image signal and which forms a color picture,

a projection lens unit which magnifies the color picture formed by the light valve and which projects the magnified color picture onto a screen, and

Lambert does not teach the use of polarization conversion means.

Hwang teaches a polarization conversion system installed between a color separator and a light valve, which converts the incident beam into a beam with a single polarization.

a first and a second fly-eye lens array are arranged on a light path between the color separator and the light valve, and

the polarization conversion system is installed behind the second fly-eye lens array and comprises a plurality of polarization beam splitters disposed perpendicular to the traveling direction of light and a plurality of half wave plates. Forming the PBS's at half the size of the lenslets is well known in the art because each lenslet forms a condensing light beam.

It would have been obvious to one skilled in the art at the time of the invention to modify the device of Lambert by the addition of polarization conversion means, as taught by Hwang, because it is well known in the art to use such structures to obtain use of both polarization components in liquid crystal light valves.

It also would have been obvious to one skilled in the art at the time of the invention to modify the device of Lambert by the substitution of a different type of color

separation means, such as taught by Hwang because each would function as a means to form separated color beams.

The use of diaphragm means to control divergence of light from a source is deemed to be old and well known in the art.

6. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lambert and Hwang as applied to claim 15 above, and further in view of Kobayashi (6,057,894).

Lambert and Hwang disclose the invention substantially as claimed but do not teach the formation of color separation means of sequential dichroic prisms.

Kobayashi teaches such a color separation structure with structure (6) which is formed of three prisms with dichroic surfaces (6B, 6R, 6G).

It would have been obvious to one skilled in the art at the time of the invention to modify the device of Lambert and Hwang by the substitution of a different type of color separation means, such as taught by Kobayashi, because each would function as a means to form separated color beams.

7. Claim 23-24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lambert and Hwang as applied to claim 15 above, and further in view of Kanayama et al. (2003/0095213).

Lambert and Hwang et al. disclose the invention substantially as claimed but do not teach the formation of color separation means of parallel dichroic filter means formed on prisms.

Kanayama teaches such a color separation structure with structure (5) which is formed of three prisms with dichroic filter surfaces .

It would have been obvious to one skilled in the art at the time of the invention to modify the device of Lambert and Hwang et al. by the substitution of a different type of color separation means, such as taught by Kanayama et al. (2003/0095213), because each would function as a means to form separated color beams.

8. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lambert and Hwang as applied to claim 15 above, and further in view of Itoh.

Lambert and Hwang disclose the invention substantially as claimed but do not teach the formation of the particular polarization separation means.

Itoh teach of polarization conversion means having a polarization separator (426) for reflecting a first polarization, a reflector (497) for reflecting light of a second polarization, and a half wave plates (446) for changing the polarization of the first or second beam .

It would have been obvious to one skilled in the art at the time of the invention to modify the device of Lambert by the addition of polarization conversion means, as taught by Itoh, because it is well known in the art to use such structures to obtain use of both polarization components in liquid crystal light valves.

9. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lambert and Shibatani and further in view of Shimizu et al. (2003/0081178)

It would have been obvious to one skilled in the art at the time of the invention to modify the device of Lambert and Shibatani et al. by the addition of a wire grid polarizer

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in front of the light valve, as taught by Shimizu et al., in order changed the direction of the light path and eliminate ant stray polarizations.

Allowable Subject Matter


10. Claims 10, 12, 26, 28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Dowling whose telephone number is 571-272-2116. The examiner can normally be reached on MON-THURS.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-1750. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

wcd



William Dowling
Primary Examiner